

NEMATOTAENIID CESTODES FROM AUSTRALIAN AMPHIBIANS

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Hickman (1960) examined Tasmanian frogs for adult cestodes of the cyclophyllidean Nematotaeniidae Lühe, 1910. He described *Nematotaenia hylae* Hickman, 1960 (from *Litoria ewingii* and *Ranidella signifera*), *Cylindrotaenia crinia* (Hickman, 1960) Jones, 1987 (from *R. tasmaniensis*), and *Cylindrotaenia minor* (Hickman, 1960) Jones, 1987 (from *R. tasmaniensis* and *R. signifera*). These cestodes have been recognized (Jones, 1987) as distinct species.

We examined 924 adult anurans from mainland Australia for intestinal parasites (Delvinquier and Jones, 1988). As well, we examined voucher specimens of *Assa darlingtoni*, *Philoria loveridgei* and *Ranidella parinsignifera*, from the Queensland Museum. Here we list the nematotaeniid cestodes (Table 1) from all these frogs and from a specimen of *Ranidella riparia* (Coll. Dr. Mahoney, Australian Helminthological Collection, South Australian Museum; AHC 17750), and two specimens of *Bufo marinus*. (Coll. Dr. R. Speare). Cestodes collected by us have been deposited in the Queensland Museum (QM GL 4886-4888).

Host	N	Cm	Nh	S	I	Loc.
Myobatrachidae						
<i>Assa darlingtoni</i>	13	2		5	1	A
<i>Philoria loveridgei</i>	4	1		1	1	A
<i>Limnodynastes ornatus</i>	10		2	5	2	B,C
<i>Ranidella parinsignifera</i>	20		7	5	2	D
<i>R. signifera</i>	40		2	2	1	E
<i>R. riparia</i>	na		1	na	na	F
<i>Uperoleia rugosa</i>	5		1	5	1	G
Hylidae						
<i>Cyclorana novaehollandiae</i>	6		2	2	1	H
<i>Litoria fallax</i>	72		8	14	1	I
<i>L. inermis</i>	26		8	2	1	J
<i>L. latopalmata</i>	20		1	9	1	H
<i>L. pallida</i>	21		5	4	1	K
<i>L. peronii</i>	26		1	5	1	I
Bufonidae						
<i>Bufo marinus</i>	>767*		2	many	1	L

TABLE 1. Anuran hosts of nematotaeniid cestodes from the Australian mainland. Abbreviations are : N=number of hosts examined; S=number of localities from which host was collected; I=number of localities in which host infected; Cm=*Cylindrotaenia minor*; Nh = *Nematotaenia hylae*. Localities: A=Lamington National Park, Qld; B=Road Atherton-Herberton, Qld; C=Seven Emu Lagoon, Qld; D=Brisbane, Qld; E=Rous, N.S.W.; F=Yudnamutana, Gammon Ranges, S.A.; G=Ban Ban, Qld; H=Road Eidsvold-Gayndah, Qld; I=Mt Nebo, Qld; J=Road Mossman-Mareeba, Qld; K=Westmoreland Station, Qld; L=10 km north of Mundubbera, Qld. na= data not available; *- pooled data of authors and Dr R. Speare.

Nematotaenia hylae is the most common nematotaeniid of Australian anurans (Table 1) occurring in water-breeding frogs and toads, which, with the exception of *Cyclorana novaehollandiae* and *Bufo marinus*, have a snout-to-vent length of 50mm or less. Finding *N. hylae* in cane toads is interesting because we have examined over 260 specimens of *Bufo marinus* for nematotaeniid cestodes without finding any adult cestodes. In his study, Dr R. Speare (pers. comm.) examined over 500 cane toads and found only two infected specimens. *Nematotaenia hylae* occurs in amphibians in Tasmania, South Australia and the eastern mainland states, whereas the cane toad is restricted to Queensland, New South Wales and the Northern Territory. Members of *Nematotaenia* have not been recorded from South America, where *B. marinus* originated (Jones, 1987). Therefore, it is unlikely that *N. hylae* was introduced into Australia with *B. marinus* but rather that the native parasite has adopted the cane toad as a new host.

Life-cycles of *Cylindrotaenia* from Africa and South America (Joyeux, 1924; Stumpf, 1982) suggest that *Cylindrotaenia* has a one-host aquatic cycle, (i.e. adult or juvenile frogs become infected by eating cestode eggs in water). No other information is available for nematotaeniid life cycles. The host range of *Cylindrotaenia* in Australia however, allows us to postulate on the life cycles of these parasites.

Cylindrotaenia minor was found in two species of myobatrachid frogs (Table 1) which occur in isolated mountain forests in southern Queensland and northern New South Wales (Cogger, 1985). One species, *Assa darlingtoni*, rears its young in small pouches on the flanks of the rear legs of adult males (Cogger, 1985). The other, *Philoria loveridgei* lays its eggs in moist tunnels on the forest floor (Cogger, 1985). Neither frog breeds in water. Thus, it is likely that the life cycle of this tapeworm is completed on land. Two other species of *Cylindrotaenia* are known from the Australian mainland (Jones, 1987); both infect lizards which do not utilize bodies of water for breeding or drinking. In the light of these observations nematotaeniid life-cycles (Joyeux, 1924; Stumpf, 1982) need to be further studied.

References

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